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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO.      |
|--|-------------|----------------------|---------------------|-----------------------|
| 10/042,134   | 01/11/2002  | Hyun Jeong Park      | Q67500              | 5826                  |
| 7590   | 09/07/2004  |                      | EXAMINER            |                       |
| SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC<br>2100 Pennsylvania Avenue, N.W.<br>Washington, DC 20037-3213 |             |                      |                     | ORTIZ CRIADO, JORGE L |
|  |             | ART UNIT             | PAPER NUMBER        | 2655                  |

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                      |                  |
|------------------------------|----------------------|------------------|
| <b>Office Action Summary</b> | Application No.      | Applicant(s)     |
|                              | 10/042,134           | PARK, HYUN JEONG |
|                              | Examiner             | Art Unit         |
|                              | Jorge L Ortiz-Criado | 2655             |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 11 January 0202.  
 2a) This action is **FINAL**.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-17 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-17 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 11 January 2002 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over “the admitted prior art” in view of Koudo et al. U.S. Patent No. 5,956,307.

Regarding claims 1 and 6, the admitted prior art discloses a means for controlling spindle motor speed of an optical disc reproducing device having a buffer that buffers data reproduced from a disc and reproduces an audio signal (See page 3, line 21 to page 4, line 4; Fig. 1), comprising:

an EFM demodulation means for EFM (Eight to Fifteen Modulation)demodulating the data read by the disc and outputting EFM data and a WFCK (Write Frame Sync Clock)(See page 2, lines 10-14; Fig. 1, ref# 104);

a frequency error measurement means for comparing a frequency of the WFCK extracted by the EFM demodulation means with a frequency of a theoretical WFCK and outputting the

difference between the extracted WFCK and the theoretical WFCK as an error value (See page 2, lines 10-17; Fig. 1, ref# 106);

a buffering means for storing the EFM data, performing ECC (Error Code Correction) of the stored EFM data and storing transfer data to be transmitted to an external system for reproduction of an audio signal after the ECC (See page 3, lines 10-16);

a motor control signal generating means for controlling the rotation speed of the spindle motor that rotates the disc, based on the error value provided by the frequency error measurement means, to reproduce an audio signal (See page 2, lines 17-19; Fig. 1, ref# 108)

The prior art fails does not discloses a lead/lag detection means for comparing points in the buffering means where the EFM data is recorded and the transfer data is read, and identifying transfer pointer leads or lags behind an EFM pointer; and controlling the rotation speed of the spindle motor based on the lead/lag information detected by the lead/lag detection means.

However, this feature is well known in the art as evidenced by Koudo et al., which discloses a means for controlling spindle motor speed of an optical disc reproducing device having a buffer that buffers data reproduced from a disc and reproduces an audio signal, comprising a demodulation means for demodulating the data read by the disc and outputting the data and a Write Frame Sync Clock (WFCK); a frequency error measurement means for comparing a frequency of the WFCK extracted by the demodulation means with a frequency of a theoretical WFCK and outputting the difference between the extracted WFCK and the theoretical WFCK as an error value; a buffering means for storing the data, performing ECC (Error Code Correction) of the stored data and storing transfer data to be transmitted to an external system for reproduction of an audio signal after the ECC (See Fig. 3, col. 22, line 1 to col. 23, line 57);

a lead/lag("phase difference") detection means for comparing points ("address locations") in the buffering means where the data is recorded and the transfer data is read, and identifying transfer pointer leads or lags ("the phase difference result") behind a pointer (See Fig. 3, ref# 39,34,35; col. 22, lines 11-31); and

a motor control signal generating means for controlling the rotation speed of the spindle motor that rotates the disc, based on the error value provided by the frequency error measurement means and lead/lag ("phase difference") information detected by the lead/lag("phase difference") detection means (See Fig. 3, ref# 3; col.. 22 lines 34-64)

Therefore, it would have been obvious to one with an ordinary skill in the art at the time of the invention to include a lead/lag ("phase difference") detection means for comparing points in the buffering means where the data is recorded and the transfer data is read, and identifying transfer pointer leads or lags ("the phase difference result") behind a pointer; and controlling the rotation speed of the spindle motor based on the based on the error value provided by the frequency error measurement means and lead/lag ("phase difference") information detected by the lead/lag ("phase difference") detection means, in order to avoid cumulative clock errors between the read (read out data from the buffer) and write (data recorded to the buffer) clock avoiding reproduction errors of the audio data to be reproduced, as suggested by Koudo et al

Regarding claims 2 and 8, the combination of the admitted prior art and Koudo et al shows wherein the lead/lag ("phase difference") detection means compares the points in the buffering means where the EFM data is recorded and the transfer data is read (See Koudo et al.; Fig. 3, ref# 39,34,35; col. 22, lines 11-31), and generates the lead signal indicating the transfer

pointer is located before the EFM pointer and the lag signal indicating the transfer pointer is located after the EFM pointer (generated result **phase difference** leads or lags”)

Regarding claims 3 and 9, the combination of the admitted prior art and Koudo et al shows wherein the lead/lag (“**phase difference**”) detection means generates the lead signal and the lag signal only when the gap between the transfer pointer and the EFM pointer exceeds a prescribed range (See Koudo et al.; col. 22, lines 44 to col. 23, line 10)

Regarding claims 4 and 10, the combination of the admitted prior art and Koudo et al shows wherein the lead/lag (“**phase difference**”) detection means is configured to vary the prescribed range (See Koudo et al ; col. 22, lines 44 to col. 23, line 10)

Regarding claims 5 and 11, the combination of the admitted prior art and Koudo et al shows wherein the motor control signal generation means adds  $-\alpha$  or  $+\alpha$  to the error value generated by the frequency error measurement means depending on the lead/lag information detected by the lead/lag (“**phase difference**”) detection means (See Koudo et al.; Fig. 3, ref# 3, col. 22, lines 55-56)

Regarding claim 7, the combination of the admitted prior art and Koudo et al shows wherein said spindle motor speed control apparatus is coupled to an optical disc reproducing device (See Koudo et al.; Fig. 3)

Regarding claims 12-17, Method claims 12-17 are drawn to the method of using the corresponding apparatus claimed in claims 6-11. Therefore method claims 12-17 corresponds to the apparatus claims 6-11 and are rejected for the same reasons of obviousness as used above.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jorge L Ortiz-Criado whose telephone number is (703) 305-8323. The examiner can normally be reached on Mon.-Thu.(8:30 am - 6:00 pm),Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris H To can be reached on (703) 305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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